-16-

CLAIMS

What is claimed is:

1.   A method for analyzing a network link in a computer network, comprising:

generating a predetermined signal on the network link;

detecting a response of the link to the predetermined signal;

analyzing the response for an influence of a termination of the link, in which the step of analyzing comprises:

applying a short circuit threshold to the response of the link,

applying an open circuit threshold to the response of the link, and

searching the response of the link for a matched terminator;

locating the termination of the link in response to the application of the short circuit threshold, open circuit threshold, and search for the matched terminator; and

determining a time delay between the generation of the predetermined signal and the located termination.

2.   The method described in Claim 1, wherein the step of searching for the response of the matched terminator comprises determining a change in the influence of skin effects on the response resulting from the predetermined signal reaching the terminator.

3.   The method described in Claim 1, wherein generating the predetermined signal comprises generating a current step function on the network link.

4.   The method described in Claim 1, wherein the step of searching for the response of the matched terminator comprises detecting an inflection point in induced voltage on the network link.

5. The method described in Claim 1, wherein the step of searching for the response of the matched terminator comprises:

        calculating a first-order differential of the response as a function of delay from the generation of the predetermined signal;

        determining where the first order differential indicates an inflection; and identifying the inflection as the terminator.

6. The method described in Claim 1, further comprising calculating the length of the network link to the terminator in response to the time delay.

7. The method described in Claim 1, wherein the step of analyzing further comprises low pass filtering the response of the link and then detecting an inflection point in filtered response of the network link.

8. The method described in Claim 1, wherein the step of analyzing further comprises low pass filtering the response of the link and then applying the thresholds to the filtered response.

9. A network termination analysis device for a digital data network, comprising:

        a function generator that injects a predetermined signal onto cabling of the network;

        a digitizer that digitally samples the network's response to the predetermined signal; and

        a system processor that downloads data from the digitizer to analyze the network's response to the predetermined signal and identify a time between the generation of the predetermined signal and a change in the network's response due to a termination of the network, in which the analysis comprises applying a short circuit threshold to the response, applying an open circuit threshold to the response, and searching the response for a matched terminator.

10. A device as described in Claim 9, wherein function generator injects a step function.

11. The device described in Claim 9, wherein the system processor searches the response for the matched terminator by searching for an inflection point in induced voltage on the network cabling.

5   12. The device described in Claim 11, wherein the system processor detects the inflection point by calculating a first-order differential of the response as a function of delay from the generation of the predetermined signal.

13. The device described in Claim 9, wherein the system processor calculates lengths of the cabling based on the time between the generation of the predetermined signal and a

10   change in the network's response exceeding any one of the short or open circuit thresholds or the detection of the matched terminator.

14. The device described in Claim 13, further comprising a monitor for displaying the calculated lengths for plural sets of cabling of the network.

15. The device described in Claim 14, wherein the display further indicates a maximum

15   protocol-determined length for the cabling.

16. A method for analyzing a network link in a computer network, comprising:

     generating a predetermined signal on the network link;

     detecting a response of the link to the predetermined signal;

     filtering the response of the link by removing a contribution of a real component

20   of the resistance of the link; and

     displaying the filtered data to assist in the identification of impedance problems

     on the link.